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The Future of Research in Industry

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Since 1990 the environment for and execution of industrial research has changed profoundly. See, e.g., R. Buderi, Engines of Tomorrow (Simon and Shuster, New York, 2000); H. W. Chesbrough, Open Innovation (Harvard Business School Press, Boston, 2003); C. B. Duke, Creating Economic Value from Research Knowledge (The Industrial Physicist, Aug-Sept. 2004, pp. 29-31). According to Thomas L. Friedman ("The World is Flat," Farrar, Straus and Giroux, New York, 2005) a new global communications-collaboration platform has "flattened" the world. National alarms have been raised about the US capability to compete in this changed environment. See, e.g., "America's Tech Might Slipping?," Business Week, March 14, 2004; "Globalization and Engineering," The Bridge, National Academy of Engineering, Fall 2005; "Rising Above the Gathering Storm," National Academy of Sciences, 2005. In this presentation I indicate why firms perform research and how they generate economic value from it. Then I discuss the profound changes in the environment for these activities since 1990. This leads to a consideration of how firms are modifying their Research and Development activities to deal with this situation. I close by noting implications of these developments on the role of physics and the careers of physical scientists in the 21st century.

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